

GIS for Shelter Course Description

This course is mainly for those working in managing shelter facilities for refugees. This 5 day course will provide an understanding of a range of functionality and tools available in the QGIS software for creating, managing geographic data, performing geo-processing analysis, visualizing spatial data on maps in different ways, combining and analyzing data to discover patterns and relationships. By the end of the course, participants will be prepared to start working with the software on their own. Topics to be covered shall include:

- **Explore geographic data:** How geographic data is stored; Vector and raster data;
- **Coordinate systems and map projections:**What is a coordinate system?; Geographic coordinate systems; Projected coordinate systems;
- **Querying GIS data:** Selection method; Identifying data; Find feature; Take measurements.
- **Creating feature classes/shapefiles:** Feature class organization; Feature class properties and attributes; Creating a new feature class;
- **Editing features and attributes:** Reasons to edit data; Working with the Editor toolbar; Edit sketches; Common editing tools; Edit tasks; Snapping to features while editing; Creating new features; Adding x,y data; Editing attributes; Calculating values for geometry fields;
- **Geo-processing:** Proximity analysis to features (creating buffers, Euclidean distance surfaces); working with terrain spatial data;
- **Data collection using GPS/ODK;** Importing data collected to QGIS; Creating shapefiles;
- **Map Composition (Map Composer):** Symbolizing Qualitative and Quantitative Data; Choosing symbology; Types of symbols (marker, line, fill); creating symbols; Creating labels; map elements.

Topics to be covered each data is as follows;

Day 1

- What is GIS?
- GIS Data Types
- Mapping in Layers
- Using GIS in Shelter Allocation & Management
- Introducing QGIS interface
- Exploring Geographic Data
- Introducing Coordinate Systems

Day 2

Managing GIS Data:

- Working with vector data
- Working with Raster data

GIS Data Sources: Tables

- Adding, using and managing tables
- Creating tables from other secondary data
- Selecting and sorting records from tables
- Generating statistics and summaries from tables

GIS Data Sources: Shapefiles

- Identifying features
- Selecting features by criteria/attributes
- Selecting features by location
- Joining tables and shapefiles
- Creating new vector data from selected and joined features

Day 3

GIS Data Sources: Maps & Satellite Images

- Geo-referencing maps
- Creating new shapefiles
- Digitizing features of interest from maps and satellite images

Geo-processing

- Proximity analysis (To water points, schools, health facilities, sanitation blocks)
- Buffering
- Euclidean Distance surfaces

Day 4

Settlement plan generation

- Working with terrain spatial data
- Creating slope, contours
- Converting shapefiles to CAD data
- Available Data for Terrain Analysis

GPS/odk data collection

Day 5

Visualization of Data using Maps

- Importing odk/GPS data into QGIS
- Using map composer
- Map elements and cartography rules
- Exporting/saving map
- Saving and using map template